

NOVEMBER/DECEMBER 2025

**23UECA12A/23UEAI12A — STATISTICAL
METHODS AND ITS APPLICATIONS — I**

Time : Three hours

Maximum : 75 marks



SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

List the types of classification of data.

2. In a survey of 15 families in a village, the number of children per family was recorded and the following data obtained.

1 0 2 3 4

5 6 7 2 3

4 0 2 5 8

Represent the data in the form of a discrete frequency distribution.

3. Write merits and demerits of harmonic mean.
4. Find the mode of 2, 3, 5, 5, 2, 6, 7, 6, 5, 1, 0, 5.

5. Write the formula for standard deviation.
6. For the set of observations 3, 15, 16, 32, 18, 25, 21, 46, 30, 12 find the range.
7. State the formula for Karl Pearson's coefficient of Skewness.
8. Show graphically the position of mean, median and mode in a positively skewed distribution.
9. Write the formula of Spearman's rank correlation coefficient when ranks are not repeated.
10. Write the formula for the regression coefficient.



SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) What is tabulation? What are its uses?
Explain the parts of the statistical table.

Or

- (b) Draw a Pie-diagram of the following data relating to the area under different food crops :

Food crops	Rice	Wheat	Barley	Jowar	Bajra	Maize	Others
Area in (000,000 acres)	8	8	4	2	2	5	11

18. The following table gives the frequency distribution of expenditure on education per family per month among families in two towns.

Expenditure	Town A	Town B
3-6	28	39
6-9	292	284
9-12	389	401
12-15	212	202
15-18	59	48
18-21	18	21
21-24	2	5

Find the arithmetic means and standard deviations of the expenditure at both towns.

19. Scores at an aptitude test by 100 candidates are given below. Calculate Karl Pearson's coefficient of skewness.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	10	15	24	25	10	10	6

20. Find the coefficient of correlation between x and y from the following data :

x	5	10	5	11	12	4	3	2	7	1
y	1	6	2	8	5	1	4	6	5	2

12. (a) Calculate A.M, G. M and H.M of the following quantities : 3, 6, 24, 48.

Or

- (b) The mean yearly salary of employees of a company was Rs. 24,000. The mean yearly salaries of male and female employees was Rs. 25,000 and Rs. 19,000 respectively. Find out the percentage of males and females employed by the company.

13. (a) Compute the coefficients of quartile deviation from the following data :

Marks	10	20	30	40	50	60
No. of Students	4	7	15	8	7	2

Or

- (b) Calculate the mean deviation about mean from the following data :

Class interval	0-9	10-19	20-29	30-39	40-49	50-59
Frequency	15	36	53	42	17	12

14. (a) The first three moments of a distribution about the value 4 are -1.5 , 17 and -30 . Find the values of mean, standard deviation, and the third-moment measure of skewness.

Or

- (b) The first four central moments are 0 , 0.25 , 0.7 and 18.5 respectively. Calculate the measure of skewness and kurtosis on the nature of the distribution.
15. (a) The following are the ranks obtained by 10 students in Statistics and Mathematics.

Statistics	1	2	3	4	5	6	7	8	9	10
Mathematics	1	4	2	5	3	9	7	10	6	8

Obtain Spearman's rank correlation coefficient.

Or

- (b) For a given set of bivariate data, the following results were obtained.

$\bar{X} = 53.2$, $\bar{Y} = 27.9$, Regression coefficient of Y on $X = -1.5$. Obtain the value of the correlation coefficient.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. The frequency distribution of wages in a certain factory is as follows :

Wages (Rs.)	250-259	260-269	270-279	280-289
Number of workers	3	7	13	17
Wages (Rs.)	290-299	300-309	310-319	
Number of workers	12	10	8	

Draw an Ogive for this distribution and hence find the 3rd quartile.

17. Find the Mean and Median for the following data :

Class	1-10	11-20	21-30	31-40	41-50
Frequency	3	7	13	17	12
Class	51-60	61-70	71-80	81-90	91-100
Frequency	10	8	8	6	6